128701

Shaughnessy No: 128701

Date Out of EAB: MAR 04 1985

To: R. Mountfort
Product Manager 23
Registration Division (TS-767)

From: Samuel M. Creeger, Chief
Environmental Chemistry Review Section 1
Exposure Assessment Branch
Hazard Evaluation Division TS-769c

Attached, please find the EAB review of:

Reg./File # : 8340-EUP-8

Chemical Name: HOE 33171

Type Product : Herbicide

Product Name : WHIP 1EC Herbicide

Company Name : American Hoechst

Purpose : Request extension of EUP on rice.

Action Code : 716

Date Received : 12/17/84

Date Completed: 3/4/85

EAB #(s) : 5205

TAIS Code: 33

Reviewing Time: 2.5 days

Deferrals to:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1. CHEMICAL: Common Name- fenoxaprop-ethyl (proposed)
Chemical Name- ethyl 2-[4-[(6-chloro-2-benzoaxazolyl)oxy]phenoxy] propanoate, 12.5% ai
Trade Name- Whip 1EC Herbicide
HOE 33171
Chemical structure- See review of 10 Apr 1984.

2. TEST MATERIAL: For proposed second year EUP, Whip 1EC Herbicide at maximum application rate of 0.15 lb ai/A for states other than CA. For CA, the maximum rate will be 0.2 lb ai/A.

In the submitted anaerobic aquatic metabolism study, HOE 33171-^{14}C was uniformly labeled in chlorophenyl ring at 96.3% purity and tested at 4.082 ppm.

3. STUDY/ACTION TYPE: Request for one-year extension of EUP for use on rice. Submission of a study required for registration on rice (anaerobic aquatic metabolism).

4. STUDY IDENTIFICATION: Anerobic aquatic metabolism study of the herbicide HOE 33171, tab D-3:1, vol 3, Acc. #255860.

5. REVIEWED BY:

Herbert L. Manning, Ph.D.
Microbiologist
EAB/HED

Signature: Herbert L. Manning
Date: 4 Mar 1985

6. APPROVED BY:

Samuel M. Creeger
Chief, Section 1
EAB/HED

Signature: Samuel M Creeger
Date: MAR 04 1985

7. CONCLUSIONS:

The study indicates that HOE 33171 degrades under anaerobic aquatic conditions yielding 3 metabolites, M1, M2, and M3. The study was satisfactory, except for our calculations (using regression analysis) of the half-lives. In loamy sand it was 1.4 times (39.6 vs 28 days) longer than their graphic determination. For sandy loam, our value was 1.56 times (45.8 vs 29 days) longer than theirs.

8. RECOMMENDATIONS:

The study as it stands is unsatisfactory. The differences between the half-lives we calculated and the values they obtained must be addressed. However, this study is not required for the EUP. Data previously reviewed and in EAB files support an extension of the EUP.

9. BACKGROUND:

A. Introduction

American Hoechst is requesting a one-year extension of an EUP on rice. The study will be broadened to include MO and CA, as well as the 4 other states tested in the first year of the EUP. For CA only, the maximum rate will be increased to 0.2 lb ai/A. The EUP extension will run 85 tests over 4,250 acres (50 acres per test) using a maximum of 637.5 lbs ai.

An anaerobic aquatic metabolism study was submitted to comply with one of the needed requirements to register HOE 33171 on rice.

B. Directions for Use

See proposed label and proposed Experimental Use Permit Program in CONFIDENTIAL APPENDIX.

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

A. Study Identification

See Section 4.

B. Materials and Methods

This study was previously reviewed (3 Nov 1983) under section 3.3, ANAEROBIC SOIL METABOLISM.

C. Reported Results

Radioactive recovery ranged from 78.8 to 108%. Table 2 summarizes the data. Figure 3 gives radio-TLC of loamy sand soil extract for day one. Figures 4 and 5 give decline curves of HOE 33171 in loamy sand and sandy loam, respectively. Figures 10 and 11 give log-linear regression plots for degradation in loamy sand and sandy loam, respectively. The study findings were as follows:

1. Very rapid degradation to the free acid (M1 metabolite) and the two other degradates (M2, M3) occurred during day one.

2. M3 degradate was not detected beyond day two.

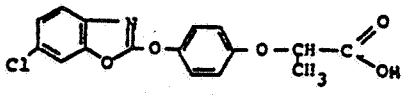
3. Half-life of HOE 33171 was less than one day.

4. Bound residues increased to 35.0-42.3% by day 32.

5. Graphically determined half-lives of parent + M1 were 28 and 29 days in loamy sand and sandy loam, respectively.

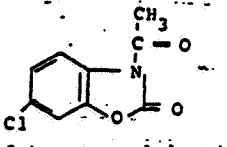
The structures and names of the degradates are given below.

M1: 2-[4-(6-chloro-2-benzoxazolyloxy)-phenoxy]-propionic acid

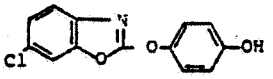


mol.w. 347

M2: 6-chloro-2,3-dihydro-benzoxazol-2-one



M3: 4-(6-chloro-2-benzoxazolyloxy)-phenol



D. Author's Conclusions

HOE 33171 + M1 (major degradate) degraded fairly rapidly (T1/2=28-29 days) in two soils under anaerobic aquatic conditions. The 3 degradates, M1, M2, M3, present in this study were also detected in an aerobic soil metabolism study (previous review of 3 Nov 1983).

E. Comments

The study in general satisfies the anaerobic aquatic metabolism requirement. One point must be addressed: the half-lives (determined graphically) for HOE 33171 in loamy sand and sandy loam were 28 and 29 days, respectively. Our log-linear regression analysis of the data in figures 10 and 11 gave half-lives of 39.6 days for loamy sand and 45.8 days for sandy loam. The statistics and plots are in CONFIDENTIAL APPENDIX.

11. COMPLETION OF ONE-LINER:

No new information can be added at this time.

12. CONFIDENTIAL APPENDIX

Fenoxaprop-ethyl scientific review

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